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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,774	02/11/2004	Jianbo Lu	81096192(FGT 1880 PA)	3409

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EXAMINER	
TRAN, DALENA	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,774	LU ET AL.	
	Examiner	Art Unit	
	Dalena Tran	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-10,13-17,20-23 and 26-30* is/are rejected.

7)☒ Claim(s) *5,6,11,12,18,19,24 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/11/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant(s)

1. This application has been examined. Claims 1-30 are pending.

The prior art submitted on 2/11/04 has been considered. However, there are 2 foreign patent documents have not considered because the examiner has not received yet: JP 63,203,456 (sheet 5 of 6), and SU 816,849 (sheet 6 of 6). Submission is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 7, 13-17, 20, and 26-27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (6,529,811) in view of Kurosawa (4,712,807).

As per claim 1, Watson et al. disclose a method of controlling an automotive vehicle comprising: determining a road roll rate (see column 5, lines 8-34; and columns 19-20, lines 8-3). Watson et al. do not disclose determining a wheel departure angle. However, Kurosawa discloses determining a wheel departure angle in response the road roll rate, and controlling the vehicle in response the wheel departure angle (see columns 2-3, lines 37-43; and columns 13-14, lines 5-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al. by combining determining a wheel departure angle for determining a running state of the vehicle in order to control the vehicle turning or steering to improve vehicle driving stability.

As per claim 2, Watson et al. disclose a determining a relative roll angle (see columns 5-6, lines 35-22). Watson et al. do not disclose load-induced pitch misalignment. However, Kurosawa discloses controlling the vehicle comprises controlling the vehicle in response road roll rate and a load-induced pitch misalignment (see columns 18-19, lines 27-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al. by combining load-induced pitch misalignment to control a load acting between wheels and vehicle body to maintain vehicle stability.

Also, as per claim 4, Kurosawa discloses determining wheel departure angle comprises determining the wheel departure angle response to the roll rate, the yaw rate, the road angular rate, sensor yaw rate, the relative roll angle, the relative pitch angle, and the senor pitch misalignment (see columns 3-4, lines 44-48).

As per claim 3, Watson et al. disclose determining a relative angle in response to a rate and a lateral acceleration (see columns 5-6, lines 35-22).

As per claim 7, Watson et al. disclose determining road rate comprises determining road roll rate in response sensor roll rate (see columns 19-20, lines 8-3).

As per claim 13, Watson et al. do not disclose determining a road roll rate is performed in a wheel lift status. However, Kurosawa discloses determining a road roll rate is performed in a wheel lift status (see column 5, lines 42-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al. by combining determining a road roll rate is performed in a wheel lift status for accurately controlling the vehicle in response to the load acting on vehicle.

Also, as per claim 14, Kurosawa discloses determining a road roll rate is performed in response to brake precharge status (see columns 20-21, lines 59-42).

As per claims 15-16, Watson et al. disclose method of controlling a safety system automotive vehicle comprising: determining a relative roll angle; and controlling the safety system in response to the relative roll angle (see columns 20-21, lines 24-25), and determining a total roll angle velocity (see columns 12-13, lines 24-29; and column 16, lines 23-64). Watson et al. do not disclose wheel departure angle in response to a total roll angle velocity. However, Kurosawa discloses determining a wheel departure angle in response to a total roll angle velocity, and controlling the safety system in response to the wheel departure angle during wheel lift and for predetermined time thereafter (see columns 13-14, lines 5-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al. by combining wheel departure angle for accurately controlling vehicle turning to prevent vehicle rollover to ensure safety for the vehicle.

Also, as per claim 17, Kurosawa discloses controlling the safety system comprises controlling at least one of an active brake control system, an active rear steering system, an active front steering system, an active anti-roll bar system, and an active suspension system (see column 2, lines 7-30).

As per claim 20, Watson et al. disclose determining a total roll angle velocity comprises determining in response to a roll rate (see columns 12-13, lines 24-29; and column 16, lines 23-64).

As per claim 26, Watson et al. do not disclose determining a total roll angle velocity is performed in response to a wheel lift status. However, Kurosawa discloses

determining a total roll angle velocity is performed in response to a wheel lift status (see column 5, lines 42-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al. by combining determining a total roll angle velocity is performed in response to a wheel lift status to accurate determine vehicle running state while the vehicle turning in response to vehicle body load acting on the wheels of the vehicle, and to control the vehicle to maintain the vehicle attitude and driving stability of the vehicle.

Also, as per claim 27, Kurosawa discloses determining a total roll angle velocity is performed in response a brake precharge status (see columns 20-21, lines 59-42).

4. Claims 8, and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (6,529,811), and Kurosawa (4,712,807) as applied to claims 1, and 15 above, and further in view of Ikemoto et al. (4,797,823).

As per claims 8, and 21, Watson et al., and Kurosawa do not disclose determining a road roll comprises determining the road roll rate, and total roll angle velocity in response to a yaw rate. However, Ikemoto et al. disclose determining a road roll rate, and total roll angle velocity in response to a road roll rate and a yaw rate (see columns 10-11, lines 30-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al., and Kurosawa by combining determining a road roll comprises determining the road roll rate, and total roll angle velocity in response to a yaw rate to adjust vehicle turning condition for restraining the vehicle body from rolling to maintain vehicle stability.

5. Claims 9-10, and 22-23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (6,529,811), and Kurosawa (4,712,807) as applied to

claims 1, and 15 above, and further in view of Ikemoto et al. (4,797,823), and Iwasaki (5,935,181).

As per claims 9-10, Watson et al., and Kurosawa do not disclose determining the road roll rate in response to a yaw rate. However, Ikemoto et al. disclose determining a road roll rate comprises determining the road roll rate in response to a roll rate, a yaw rate (see columns 10-11, lines 30-35; and columns 27-28, lines 64-53). Watson et al., and Kurosawa also do not disclose a pitch rate. However, Iwasaki disclose determining the road roll rate in response to a pitch rate (see the abstract; and columns 5-6, lines 23-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Watson et al., and Kurosawa by combining determining the road roll rate in response to a yaw rate, and a pitch rate for accurately determining a rolling condition of the vehicle.

Also, as per claims 22-23, Ikemoto et al. disclose determining a road roll rate comprises determining a total roll angle velocity in response to a roll rate, a yaw rate (see columns 10-11, lines 30-35; and columns 27-28, lines 64-53). Iwasaki disclose determining a total roll angle velocity in response to a pitch rate (see columns 1-2, lines 41-3).

6. Claims 28-30, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto et al. (4,797,823), in view of Iwasaki (5,935,181).

As per claim 28, Ikemoto et al. disclose a control system comprising: lateral acceleration sensor generating lateral acceleration signal; a rate sensor generating yaw rate signal; and a controller coupled to the roll rate sensor, the lateral acceleration sensors, and the yaw rate sensor (see columns 10-11, lines 30-33), determining relative

roll angle from the roll rate signal and the lateral acceleration signal (see columns 2-3, lines 44-4), controller determining a wheel departure angle from the total roll velocity, controller determining calculated roll signal from the wheel departure angle and the relative roll angle signal (see columns 6-7, lines 44-39). Ikemoto et al. do not disclose roll rate sensor, and determining a total velocity total from the pitch rate signal. However, Iwasaki discloses roll rate sensor (see columns 6-7, lines 60-24), and controller determining a total velocity total from the roll rate signal, the yaw rate signal and pitch rate signal (see columns 5-6, lines 23-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Ikemoto et al. by combining roll rate sensor, and determining a total velocity total from the pitch rate signal to control vehicle pitching and rolling to maintain stability.

As per claim 29, Iwasaki discloses longitudinal acceleration sensor generating longitudinal acceleration signal, controller determining the total roll velocity as a function of the longitudinal acceleration signal (see column 3, lines 11-63).

Also, as per claim 30, Iwasaki discloses controller determines calculated pitch rate as a function the longitudinal accelerator, said total roll velocity being a function of the calculated pitch rate (see columns 10-11, lines 44-41).

7. Claims 5-6, 11-12, 18-19, and 24-25, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

. Yamamoto (6,766,875)

. Fujishiro et al. (4,696,489)

. Kii et al. (5,085,458)

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 571-272-6968. The examiner can normally be reached on M-F 6:30 AM-4:00 PM), off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
Dalena Tran

Dalena Tran

June 9, 2005